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*Attorneys for Plaintiffs*

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**IN THE UNITED STATES DISTRICT COURT  
DISTRICT OF UTAH, CENTRAL DIVISION**

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nCAP LICENSING, LLC, nCAP  
TELECOMMUNICATIONS, LLC, nCAP  
MEDICAL, LLC,

Plaintiffs,

vs.

APPLE, INC.,

Defendant.

**FIRST AMENDED COMPLAINT**

Case No.: 2:17-cv-00905-RJS

Judge: Robert J. Shelby

Magistrate Judge: Brooke C. Wells

**JURY TRIAL DEMANDED**

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Plaintiffs nCAP Licensing, LLC, nCAP Telecommunications, LLC and nCAP Medical, LLC (collectively referred to as “nCAP”) hereby complain against Defendant Apple, Inc. as follows:

## **OVERVIEW**

After significant research and development efforts, nCAP, a small Utah-based business, developed an antenna system and antenna enhancer designed to fill an unmet need for a covert antenna system which could be easily deployed in non-traditional locations like battlefields or disaster sites. Originally tested by American combat forces, nCAP's antenna systems are currently in use or testing by the Department of Defense ("DoD"), National Aeronautics and Space Administration ("NASA"), police and firefighting forces, and medical technology companies. nCAP was granted U.S. Patent No. 9,088,071 for its antenna enhancer invention.

Unlike the DoD, NASA, and other lawful users of nCAP's technology—who have utilized nCAP's antenna enhancer invention and paid fair value for nCAP's marketed products—Apple has sought the benefits of nCAP's groundbreaking technology without any corresponding costs. Apple knew of nCAP's technology before using it. Apple was repeatedly exposed to the groundbreaking technology at various Department of Defense events. nCAP also sought to enter into licensing discussions with Apple on multiple occasions, yet all requests were ignored. In fact, instead of engaging in licensing discussions, an employee of Apple telephoned nCAP pretending to be a girl who wanted to acquire some of nCAP's patented antenna enhancer "for a boyfriend"—presumably to secretly acquire and reverse engineer nCAP's enhancer product in the wake of negative publicity concerning "Antennagate" and the poor performance of Apple's antennas in the iPhone 4. Although that attempt at corporate espionage ultimately failed, Apple eventually discovered how to create a material that uses nCAP's patented technology. Apple knew nCAP's technology was both groundbreaking and patent pending, but Apple began including a material utilizing nCAP's patented technology without permission or even

approaching nCAP about a license. Plaintiffs nCAP Licensing, LLC, nCAP Telecommunications, LLC, and nCAP Medical, LLC (collectively “nCAP”) file this lawsuit to force Apple to stop this unlawful use of nCAP’s technology.

### **THE PARTIES**

1. Plaintiff nCAP Licensing, LLC is a Delaware corporation organized and existing under the laws of the State of Delaware, and maintains its principal place of business in Heber City, Utah. Plaintiff nCAP Telecommunications, LLC is a Delaware corporation organized and existing under the laws of the State of Delaware, and maintains its principal place of business in Heber City, Utah. Plaintiff nCAP Medical, LLC is a Delaware corporation organized and existing under the laws of the State of Delaware, and maintains its principal place of business in Heber City, Utah. The Plaintiffs maintain websites at <http://www.nCAP.com/>, <http://nCAPlicensing.com>, <http://nCAPtelecom.com/>, and <http://nCAPmedical.com/>.

2. Defendant Apple is a California corporation with its principal place of business at 1 Infinite Loop, Cupertino, California 95014. Apple has designated The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801 as its agent for service of process.

### **JURISDICTION AND VENUE**

3. This action includes a claim of patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq.* This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

4. This Court has personal jurisdiction over Apple. Apple conducts business and has committed acts of patent infringement and has induced acts of patent infringement by others in

this district and has contributed to patent infringement by others in this district, the State of Utah, and elsewhere in the United States. Apple also has affirmatively availed itself of the benefits of this district by filing answers and counterclaims in patent litigation in Utah. Specifically, Apple answered and filed counterclaims in *Leaper Footwear v. Nike et al*, Cause No. 2-07-cv-00740, and settled before answering in *Driessen et al v. Starbucks et al.*, Case No. 2:2008cv00126.

5. Apple also participated in the Utah Tech Tour in September of 2016, with Apple CEO Tim Cook speaking along with Senator Orrin Hatch as the headliners of the conference.

6. Apple owns and operates three Apple stores in Utah in Farmington, Murray, and Salt Lake City. Apple sells its products at the Apple stores, including a plurality of products which infringe upon the patent owned by nCAP.

7. Apple furthermore subjected itself to this Court's jurisdiction when a representative of Apple telephoned nCAP attempting to acquire samples of the subject technology.

8. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391(b), 1391(c) and 1400(b) because, among other things, Defendant is subject to personal jurisdiction in this district, has multiple regular and established places of business in this judicial district, certain of the acts complained of herein, including acts of infringement, occurred in this judicial district.

### **PATENT-IN-SUIT**

9. On July 21, 2015, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,088,071 (the "071 patent") entitled "TECHNIQUES FOR CONDUCTIVE PARTICLE BASED MATERIAL USED FOR AT LEAST ONE OF PROPOGATION, EMISSION AND ABSORPTION OF ELECTROMAGNETIC RADIATION."

10. A copy of the '071 patent (the patent-in-suit) is attached as Exhibit A, and incorporated by reference.

11. nCAP owns all rights, title, and interest in and to the '071 patent and possesses all rights of recovery.

### **FACTUAL ALLEGATIONS**

12. On or about April 17, 2010, nCAP's predecessor in interest was originally incorporated in Utah as ChamTech Technologies, Inc. (ChamTech) d/b/a ChamTech Operations Enterprise. On or about November 8, 2013, nCAP Holdings, LLC was formed in Delaware. ChamTech assigned its interests in the patent to nCAP Holdings, LLC on or about October 1, 2014. nCAP Holdings LLC subsequently assigned its interests in the patent to nCAP Licensing, LLC (a wholly owned subsidiary of nCAP Holdings, LLC.), both Delaware corporations. Throughout this complaint, "nCAP" will be used to refer to ChamTech and the various nCAP entities, regardless of time period.

13. In 2009, nCAP's CEO, Anthony Sutera ("Sutera"), was operating FreeLinc Technologies Inc. ("FreeLinc"), a research and development company focused on improving two-way radio communications using near-field magnetic induction technology. FreeLinc was developing multiple uses for its near-field magnetic induction technology, including in public safety, healthcare, consumer products, commercial, and military applications. FreeLinc worked on improving radio communications for the military generally, but also provided solutions for the Defense Intelligence Agency (DIA). During the course of their interactions, Sutera learned that DIA was interested in using FreeLinc's near-field magnetic induction technology to create an antenna which could be "hidden in plain sight."

14. Sutera was unconvinced that FreeLinc's near-field magnetic induction technology was the solution to DIA's problems. Sutera and others formed nCAP, believing that there were larger commercial needs related to DIA's stated problem. Specifically, nCAP's mission focused on providing portable, easily established communications in non-traditional locations. nCAP sought to develop an effective antenna for remote, impoverished, and disaster-stricken or otherwise difficult locations.

15. nCAP initially began to develop a "spray-on" antenna to reduce the amount of equipment that was required to establish communications in isolated or devastated terrain or to establish temporary or permanent command centers, hospitals, or garrisons. The result of nCAP's research and development was the creation of a material ("the Material"), which is one embodiment of the antenna enhancer of the patent in suit, which is formed by suspending conductive nano-particles in a substrate so that the particles are close but not touching (and thus not conductive), but close enough to create micro-capacitances which resulted in previously unobserved RF and electromagnetic (EM) properties

16. nCAP tested the patented invention's performance as both an antenna enhancer and an antenna, and determined that it outperformed any conventional antennas. Independent testing indicated that both the received and transmitted signal strength of a test cell phone was increased. Because of this improved signal strength, the average battery usage of a test cell phone was also significantly reduced.



Figure 1. Early application of the patented antenna enhancer on an iPad. This iPad was modified as part of the CENTCOM contract.

17. Apple released the iPhone 4 in July of 2010. In a series of events later dubbed “Antennagate,” the iPhone 4 was plagued with antenna reception and transmission problems. Although Apple attempted to alleviate the issue by sending consumers free protective phone cases designed to alleviate some of the reception and transmission issues, these events nevertheless caused a public relations backlash, likely leading Apple to continue seeking ways to improve antenna reception on its products.

18. nCAP filed its first provisional application No. 61/416,093 relating to the antenna/antenna enhancer applications of the Material on November 22, 2010. The application published on June 14, 2012.

19. Around the time nCAP filed its provisional patent application and before the application was publicly available nCAP began participating in quarterly military experimentation events at Camp Roberts, California with CENTCOM, SOCOM, PACOM, NPS (Naval Post Graduate School), dozens of DoD and other government agencies, and various other government contractors on a DoD-owned base. These experimentation events began on or about November of 2010 and continued through December of 2012.

20. nCAP began explaining the operation of its patent pending antenna enhancer and antenna systems to DoD employees at these military experimentation events. The DoD military events were an opportunity for various participants such as nCAP to demonstrate their new innovations. Because of their participation at DoD events, discussing secret and top secret projects, event attendees were privy to discussions of the enablement of nCAP's patent pending antenna enhancer *before those details were publicly available* because nCAP's patent application had not yet published.

21. None of the specific composition and enablement information nCAP disclosed was publicly available yet, since nCAP's patent application had not yet published. For example, nCAP described its patent pending antenna enhancer to Apple and other attendees as nano-particles coated in "funky" stuff. The nano-particles should be "close but not touching", nCAP told Apple and the other attendees. nano-particlenCAP also described some of the electromagnetic properties it had observed between the nano-particles, such as micro-capacitances of the nano-particles.

22. Apple attended at least one of these demonstrations where enablement, composition, and "know-how" details were disclosed. An Apple employee also met with Rhett Spencer, the CTO of nCAP, during the course of the demonstrations.

23. The military experimentation events were held at a remote military installation with poor cellular reception. Because of that poor reception, several contractors were unable to showcase their various products and applications. At the request of various military personnel and the contractors in attendance, nCAP applied its patented invention to numerous RF-enabled



devices such as cellular telephones and radios, which solved the problems caused by the poor reception of those devices at the remote military installation.

24. nCAP and the other attendees were introduced to each other at the beginning of each day of exercises. nCAP routinely went to the exercises performed by other entities and observed those exercises. During the exercises, and after the exercises were complete, nCAP would offer to modify the devices of the participants by applying nCAP's patented antenna enhancer to their cellular devices, and encourage them to perform the exercise again and compare the results of the unmodified versus the modified cellular devices. Each time, the participants' results were better after their devices were modified with nCAP's patented antenna enhancer.

25. nCAP would modify the cellular devices of other participants by applying to the cellular device an adhesive strip coated in nCAP's patent pending antenna enhancer. Apple was present when nCAP made modifications to various cellular devices. When it modified the cellular devices, nCAP demonstrated how to best place the patent pending antenna enhancer element so as to most improve the cellular signal. Apple learned of how to most effectively apply nCAP's patent pending antenna enhancer

26. Apple was aware that the application of nCAP's patent pending antenna enhancer resulted in a marked improvement in cellular communication. At the conclusion of each day, participants would again meet to discuss the results from that day's exercises. At each conclusory meeting, the participants whose cellular devices were modified by nCAP raved to their fellow participants, including Apple, that nCAP's patented antenna enhancer improved the performance of their cellular devices and consequently their exercises were better.

27. Apple was present on multiple occasions when nCAP modified the cellular devices of attendees, during experiments where nCAP's patented antenna enhancer improved the performance of the attendees' cellular devices, and when the attendees exclaimed over the improved performance because of the nCAP antenna enhancer.

28. At each event where Apple and nCAP were both present, Apple had access to multiple samples of nCAP's patented antenna enhancer and/or nCAP's patented antenna system. Apple also had the opportunity to witness how best to apply the patent pending antenna enhancer to cellular devices it had designed and manufactured.

29. While its patent was pending but before it had published, nCAP further explained its patent pending antenna enhancer and antenna systems to the other attendees in various documents and white papers. nCAP provided the DoD with copies of its white papers describing the composition of its patent pending antenna enhancer. These papers were shared amongst participants.

30. Apple was aware that nCAP's technology was the subject of a pending patent application. Although the demonstrations occurred both before publication of the patent application and before the '071 patent issued, nCAP's spray cans that held the spray-on antenna material were marked initially with "Patent Pending". Subsequently, U.S. Patent No. 9,088,071 was added to all of nCAP's products (*see, e.g.*, Figures 2 through 5).



Figure 2. nCAP's Spray-On Antenna



Figure 3. nCAP Antenna



Figure 4. nCAP's Spray-On Antenna System



Figure 5. Various Sizes of Antennas Invented, Manufactured and Sold by nCAP

31. nCAP further participated in the Trident Spectre Naval Special Warfare exercises in Fort Story Virginia, on or about April 28, 2011 through May 12, 2011. nCAP was involved in dozens of experiments utilizing the patented invention. At Trident Spectre, nCAP was exposed to another small company that built, equipped and flew specialized aircraft, Broadbay Group. Ray Fitzgerald (“Fitzgerald”), of Broadbay Group, was interested in brokering a deal between nCAP (then ChamTech) and Apple. Fitzgerald circulated a non-disclosure agreement from Apple Inc, but nothing resulted from these initial discussions.

32. Late in 2011 an early investor in nCAP attempted to begin negotiations with Apple Inc. The investor reached out to Shervin Pischevar (“Pischevar”) a venture capitalist out of San Francisco. In December of 2011, Pischevar wrote an introductory email for nCAP to Erik Lammerding (“Lammerding”) of Apple at his Apple email address. Pischevar introduced nCAP to Lammerding, noting that nCAP had “...revolutionary new technology. World changing stuff.”

33. Lammerding responded, “If you have a moment, give me a shout out on my mobile on Monday.” And he sent his cellular telephone number.

34. nCAP did not hear from Apple regarding their technology.

35. On or about February 8, 2012, nCAP’s CEO Anthony Sutura demonstrated the properties of the patented invention at a Google “Solve for X” conference. Sutura’s appearance is available at: [https://www.youtube.com/watch?v=4efE\\_gO9IFo](https://www.youtube.com/watch?v=4efE_gO9IFo). Sutura’s presentation disclosed that there was a patent pending on nCAP’s Material. In the course of the presentation, Sutura displayed a modified Apple cellular device. Sutura’s display of Apple’s cellular device reflected where the patent pending antenna enhancer should be applied.

36. On February 8, 2012 The Wall Street Journal published an article about Sutera's appearance at the Google Solve for X Conference. The article asked "Where was this stuff when the iPhone 4 came out?"

37. The Wall Street Journal article went on to note that "The company has already patented critical aspects of its technology and begun to sell to government customers..." (emphasis added).

38. Shortly after the Google presentation and the Wall Street Journal article, on or around February 22, 2012, nCAP's then General Counsel, Kristin Vazquez, received a phone call which showed up on Caller ID as "Apple Inc". The caller identified herself as a random female seeking a sample of the patented invention because "her boyfriend wanted it." After hanging up, Vazquez called the unidentified caller back using \*69. The party answering the telephone identified herself as a member of the office of the head of Mobile Devices for Apple Inc.

39. The Caller ID, showing "Apple Inc." was photographed during the call with the unnamed female (inserted herein, and incorporated by reference):



Figure 6. Photograph of telephone illustrating the call from Apple, Inc. after the Google Solve for X conference.

40. On or about May 1st, 2012 the United States Central Command (“CENTCOM”), a part of the Department of Defense (“DoD”), approached nCAP regarding the research and development of radio frequency (“RF”) technologies. CENTCOM sought improvements or solutions to various known problems in the RF field. Specifically, CENTCOM was seeking to resolve issues with near field interference and power requirements that required multiple antennas, larger antennas, and larger power sources than was convenient for deployment with armed forces, who frequently must travel on foot in hostile foreign territories. nCAP signed a contract with the Defense Acquisition Regulatory Council (“DARC”) governing the research and development of RF technologies. As part of its contract with CENTCOM, nCAP added its antenna enhancer to cellular-enabled tablets and other cellular devices. The goal of nCAP’s work was to increase the range of cellular communications, and also improve battery life of the modified cellular devices.

41. nCAP, as a participant in the events hosted by the Department of Defense fall within 48 C.F.R. 27.402 which recognizes contractors’ rights in data and copyrights. Since it is recognized that contractors may “have proprietary interests in data” and that agencies shall “protect proprietary data from unauthorized use and disclosure,” nCAP had a reasonable expectation that its participation in the Government program would not damage nCAP’s “legitimate proprietary interests” in the patented invention.

42. On or about February 17, 2014, nCAP received a request from third-party vendor (“Case Vendor”), a manufacturer of protective cases for cellular phones. Case Vendor explained to nCAP that it wanted to augment its protective cases to provide a signal boosting case. nCAP

CTO Rhett Spencer (“Spencer”) made a site visit to Case Vendor and began testing application of the patented invention to the Case Vendor products.

43. During the testing, nCAP discovered that applying the patented invention to Case Vendor’s Samsung product line improved signal strength, but it had no effect on Case Vendor’s Apple’s tested product line (the iPhone 5s). This result was baffling as an nCAP representative, Spencer, had already achieved improved signal strength on the iPhone 5.

44. Mystified by the ineffectiveness of the patented invention on the iPhone 5s, nCAP representatives disassembled an iPhone 5s to discern any issues. nCAP then discovered that a gold substance, which was not present in prior iPhone versions, had been applied to the antenna component of the iPhone 5s (See Figure 3, showing the gold substance applied to an Apple product).



Figure 7. Gold substance discovered on antennas of Apple’s products. The antennas have been peeled back.



45. nCAP examined the gold material and evaluated its properties. Upon evaluation, nCAP discovered that Apple's gold material had the same EM and RF properties as well as the same characteristics when examined by a scanning electron microscope and spectroscopy as one embodiment of nCAP's patented invention.

46. The figures below illustrate, with two different magnifications, nCAP's Material as compared to the gold material found in the Apple products. nCAP original discovered Apple's material in an iPhone 5s. nCAP has since observed this gold material in all the examined antenna-incorporating Apple products that have been sold since the 5s's release (i.e., iPhone 5s, iPhone 5c, iPhone 6, iPhone 6s, iPhone 6 Plus, iPhone 6s Plus, iPhone 7, iPhone 7 Plus, iPhone SE, iPad 4th Generation, iPad 5th Generation, iPad 6th Generation, iPad 7th Generation, iPad mini, iPad mini 2, iPad mini 3, iPad Air, iPad Air 2, iPad Pro, iPod Touch 5th and 6th generations, Apple Watch Original, Apple Watch Sport, Apple Watch Edition Series 1 and 2, Apple Watch Series 1 and 2 (including Hermes, Nike and other special editions), iMac, iMac with Retina 4k display, iMac with Retina 5k display, MacBook Air, MacBook Pro, MacBook Pro with Retina display, MacPro, Mac mini , Magic Mouse 2, Apple TV (4th generation), Apple Pencil, Apple AirPods, HomePod, and any further releases, later models or other products which are not colorably different). Below are examples from the iPhone 6, 7, and Apple Watch. Each photo reflects irregular wafers as well as more spherical micro-particles.

47. While color differences appear, these are due to changed lighting conditions at the time of photograph, not any relevant difference in the Material.)

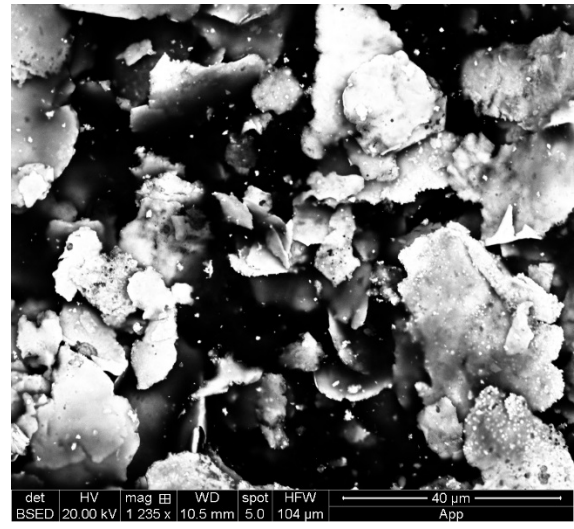
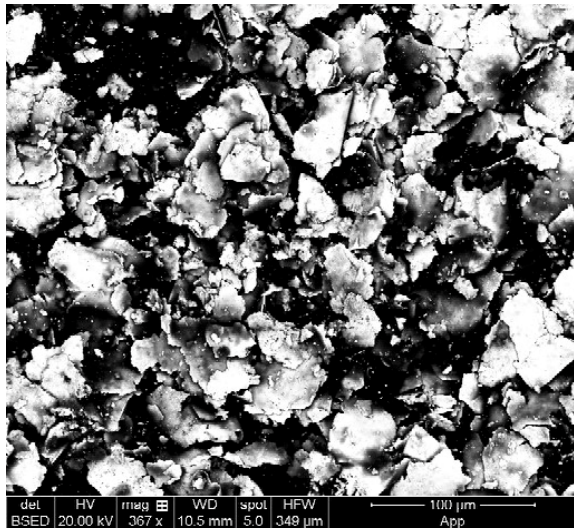


Figure 8. Sample of nCAP's Material, one embodiment of the patented invention.

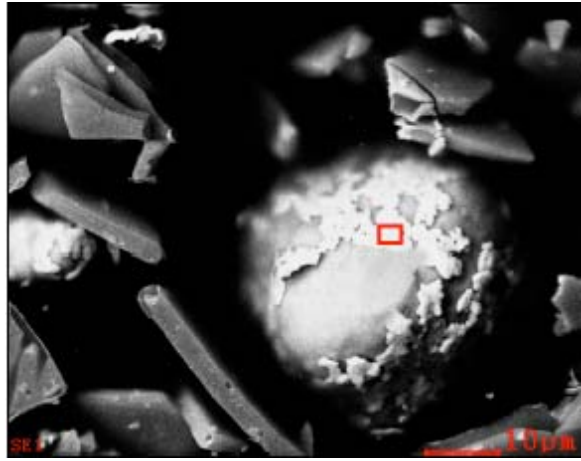
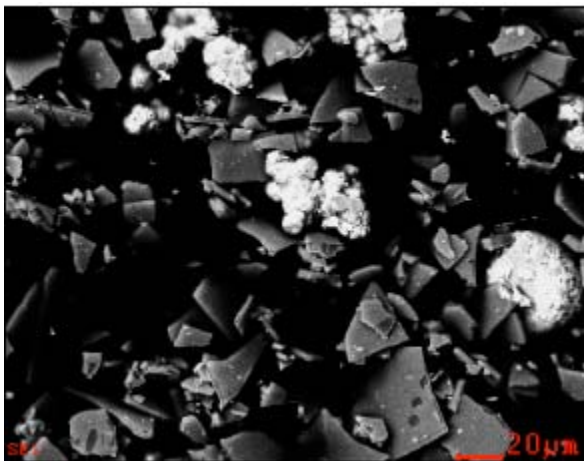


Figure 9. Sample of Apple's infringing material from the iPhone 5s

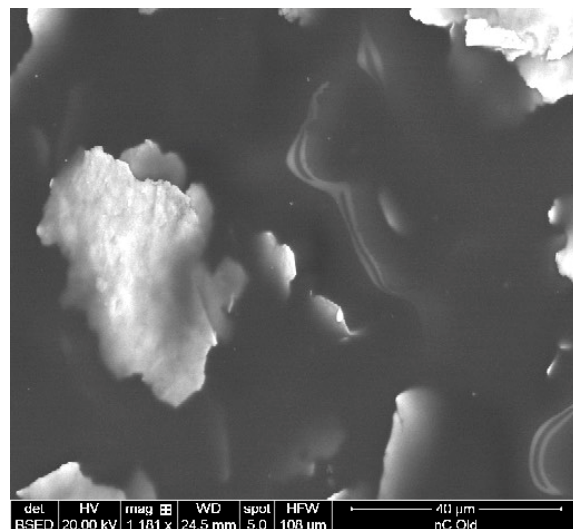
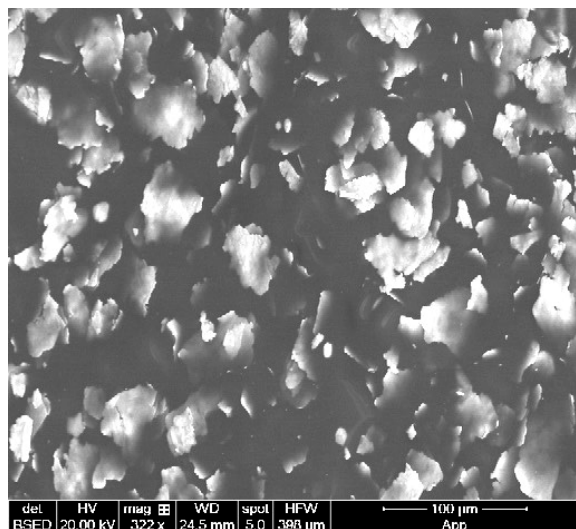


Figure 10. Sample of Apple's infringing material from the iPhone 6.

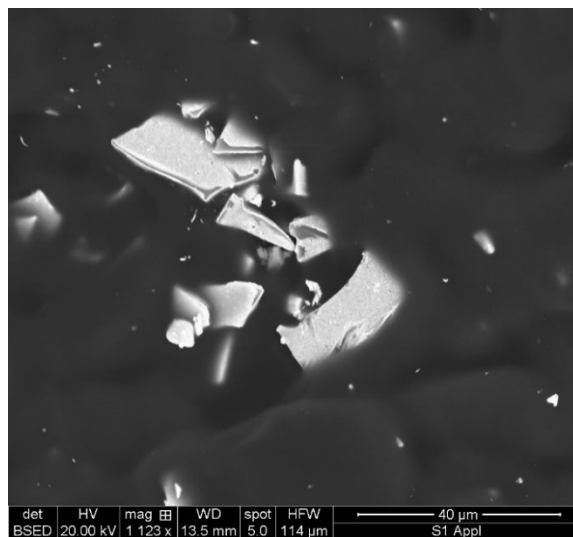
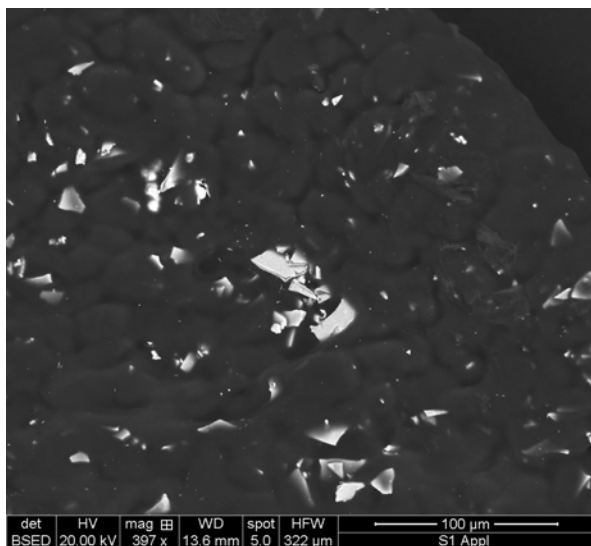


Figure 11. Sample of Apple's infringing material from the Apple Watch.

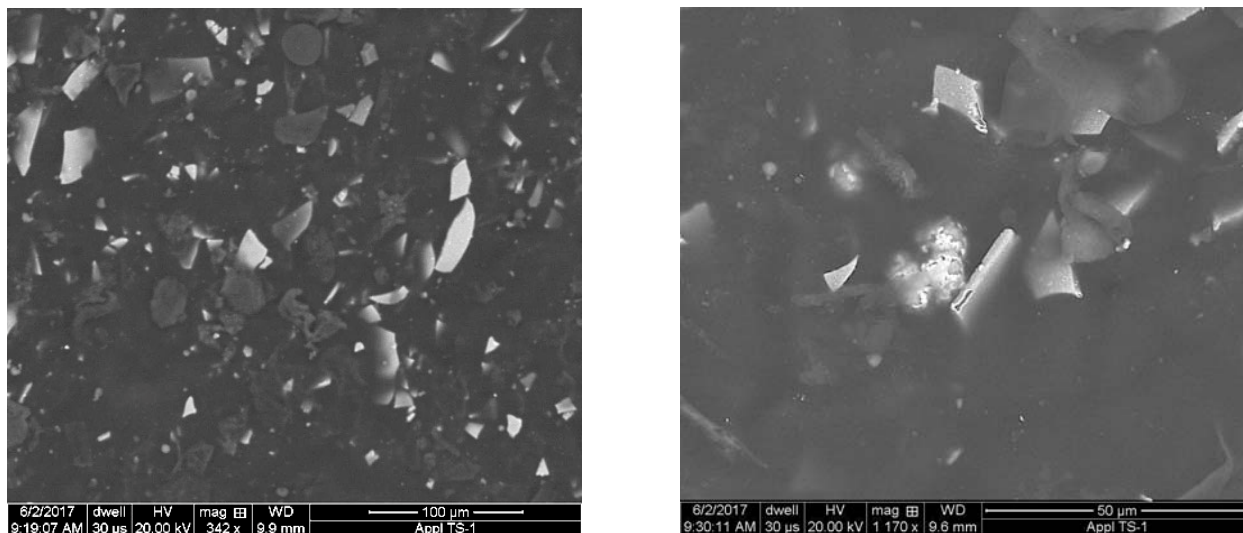


Figure 12. Sample of Apple's infringing material from the Apple i7.

48. To perform its analysis, nCAP extracted the gold substance from the antenna of the Accused Instrumentalities in a clean room. The gold substance was placed on a carbon film stem for imaging on a FEI Quanta 600 scanning electron microscope (SEM) with an energy-dispersive X-ray spectroscopy (EDAX) detector.

49. The spectroscopy identified the presence of pieces or particles of Silica, Nickel, and Silver in Apple's gold substance sample. Specifically, it appeared to include chips of silica as well as multiple "bubbles" of silver-coated nickel as most of the compound.

50. nCAP's Material has similar conductive particles or bubbles made primarily from copper. Copper and Nickel are both conductive materials, resulting in capacitance as described in the specification and claims of the patent-in-suit.

51. This is illustrated by Figures 9 and 10. Figure 9 is a detail photograph of a bubble from the patented invention and the spectroscopy of the interior of the bubble, reflecting a primarily copper interior. Figure 10 is a detail photograph of one of the bubbles from the Apple

material and the corresponding spectroscopy of the interior of the bubble, reflecting a primarily nickel interior.

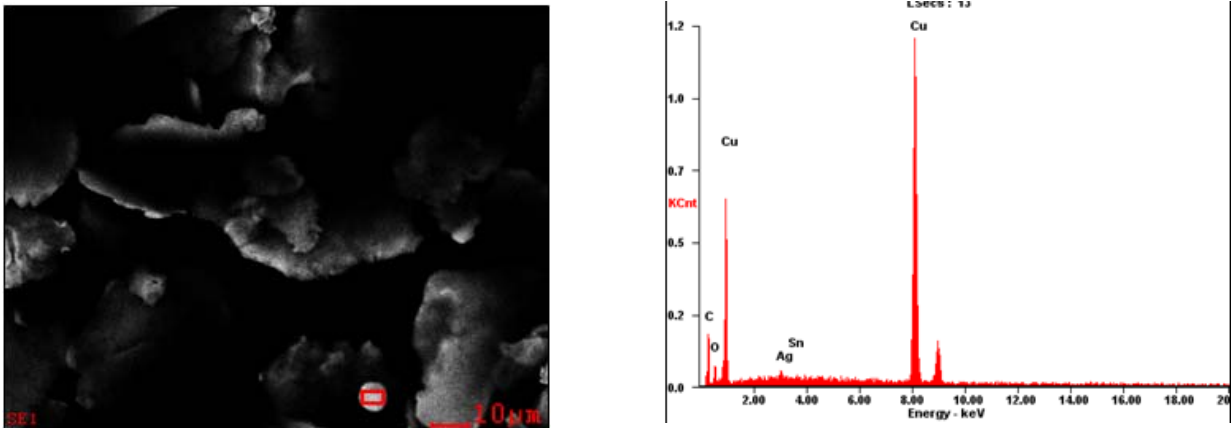


Figure 13. Detail photograph of patented invention and spectroscopy of the bubble reflecting a copper interior.

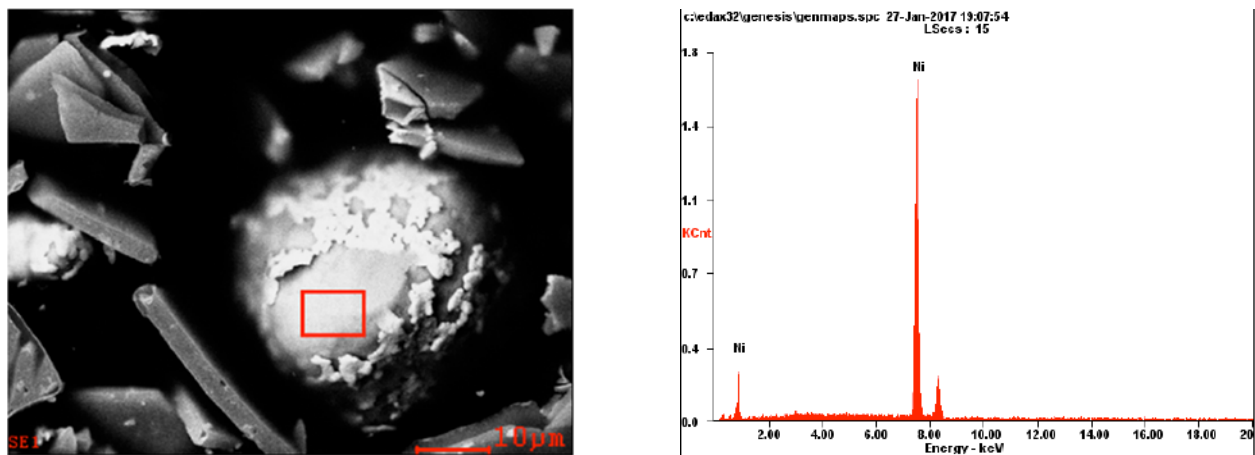


Figure 14. Close up photograph of one of the bubbles in the gold substance from the Accusd Instrumentalities, and spectroscopy of a portion of the particle.

52. Since developing the patented invention, nCAP has manufactured and sold a variety of products incorporating its Material, one embodiment of the patented invention. nCAP sold a spray-on version of the Material to the military. nCAP also offered classes to the

military on how to appropriately apply the spray-on version of the Material as the patented antenna system or antenna enhancer in the field.

53. nCAP also continues to manufacture antennas which embody the patented invention, using its Material. Currently, nCAP sells primarily to the military and to police units. It is also working to develop an underwater communications system, leveraging the Material as an antenna enhancer.

54. In addition to its use of the Material as an antenna enhancer (as described in the patent-in-suit), nCAP is also exploring applications of the Material in biotechnology and energy spaces.

55. Apple has committed and continues to commit acts of infringement under 35 U.S.C. § 271 (i) with many versions of numerous Apple's hardware products with antennas, including but not limited to, for example, iPhone 5s, iPhone 5c, iPhone 6, iPhone 6s, iPhone 6 Plus, iPhone 6s Plus, iPhone 7, iPhone 7 Plus, iPhone SE, iPad 4th Generation, iPad 5th Generation, iPad 6th Generation, iPad 7th Generation, iPad mini, iPad mini 2, iPad mini 3, iPad Air, iPad Air 2, iPad Pro, iPod Touch 5th and 6th generations, Apple Watch Original, Apple Watch Sport, Apple Watch Edition Series 1 and 2, Apple Watch Series 1 and 2 (including Hermes, Nike and other special editions), iMac, iMac with Retina 4k display, iMac with Retina 5k display, MacBook Air, MacBook Pro, MacBook Pro with Retina display, MacPro, Mac mini , Magic Mouse 2, Apple TV (4th generation), Apple Pencil, Apple AirPods, HomePod, and any further releases, later models or other products which are not colorably different (the "Accused Instrumentalities").

56. Apple's hardware products with antennas, including but not limited to, for example, iPhone 5s, iPhone 5c, iPhone 6, iPhone 6s, iPhone 6 Plus, iPhone 6s Plus, iPhone 7, iPhone 7 Plus, iPhone SE, iPad 4th Generation, iPad 5th Generation, iPad 6th Generation, iPad 7th Generation, iPad mini, iPad mini 2, iPad mini 3, iPad Air, iPad Air 2, iPad Pro, iPod Touch 5th and 6th generations, Apple Watch Original, Apple Watch Sport, Apple Watch Edition Series 1 and 2, Apple Watch Series 1 and 2 (including Hermes, Nike and other special editions), iMac, iMac with Retina 4k display, iMac with Retina 5k display, MacBook Air, MacBook Pro, MacBook Pro with Retina display, MacPro, Mac mini , Magic Mouse 2, Apple TV (4th generation), Apple Pencil, Apple AirPods, HomePod, and any further releases, later models or other products which are not colorably different and which meet at least one claim of the '071 patent.

57. Apple does not have any rights to the patent-in-suit.

58. In committing these acts of infringement, Apple knew or should have known that its actions constituted an unjustifiably high risk of infringement of at least one valid and enforceable patent. Because of this unjustifiably high risk, Apple's has committed egregious misconduct warranting enhanced damages.

#### **COUNT ONE: PATENT INFRINGEMENT**

59. nCAP incorporates by reference the preceding paragraphs as if fully set forth herein.

60. As described below, Apple has infringed and continues to infringe the patent-in-suit.

61. Apple's Accused Instrumentalities meet the claims of the patent-in-suit.

62. Apple makes, uses, offers to sell, sells and imports Apple's Accused Instrumentalities within the United States or into the United States without authority from Plaintiff.

63. Apple therefore infringes the patent-in-suit under 35 U.S.C. § 271(a).

64. Apple has actual knowledge of the patent-in-suit. For example, nCAP discussed the sale of or license to its intellectual property with Apple as early as 2011 through Broadbay, and again in 2011 through Pischevar.

65. Apple knew or should have known of nCAP's patented invention, one embodiment of which is the Material. Apple was an attendee at one or more events which occurred at military installations or military bases where cans of nCAP's spray-on Material were demonstrated. The cans were marked with "Patent Pending."

66. On information and belief, Apple also viewed the unveiling of nCAP's Material at the Solve for X conference. The presentation during "Solve for X" disclosed that the Material was "patent pending." Further, Apple would have seen the article in the Wall Street Journal which recited that nCAP had "...already patented critical aspects of its technology..."

67. nCAP also marked the antennas that it sold to police and firefighting units with "Patent Pending" and subsequently with the patent number.

68. Apple indirectly infringes the patent-in-suit by inducing infringement by others, such as its suppliers, by, for example, providing design and technical specifications for antennas and antenna enhancers to its suppliers, and requiring its suppliers to meet those specifications. Apple also actively markets to, encourages use by, and instructs consumers, businesses,



distributors, resellers, computer equipment manufacturers, and sales representatives, to use, promote, market, distribute, and/or sell the Accused Instrumentalities.

69. Apple took the above actions intending to cause infringing acts by others.

70. Apple was aware of the patent-in-suit and knew that the others' actions, if taken, would constitute infringement of the patent-in-suit. Alternatively, Apple believed there was a high probability that others would infringe the patent-in-suit but remained willfully blind to the infringing nature of others' actions.

71. Apple therefore infringes the patent-in-suit under 35 U.S.C. § 271(b).

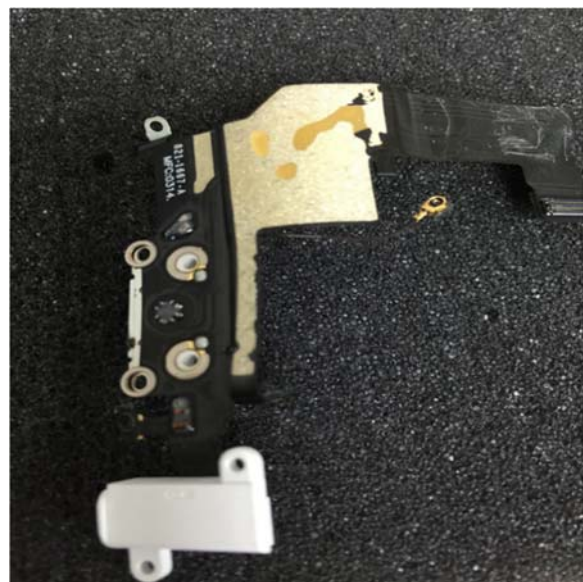
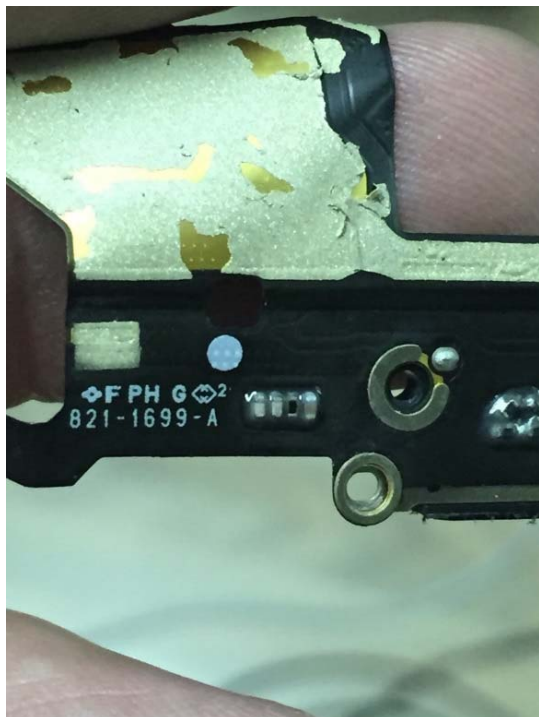
72. In offering to sell and selling the components specified above, Apple has known these components to be especially made or especially adapted for use in an infringement of the patent-in-suit and that these components are not a staple article or commodity of commerce suitable for substantial non-infringing use. Alternatively, Apple subjectively believed there was a high probability that these components to be especially made or especially adapted for use in an infringement of the patent-in-suit and that these components are not a staple article or commodity of commerce suitable for substantial non-infringing use but took deliberate steps to avoid confirming the same. Apple therefore infringes the patent-in-suit under 35 U.S.C. § 271(c).

73. Apple's acts of infringement have caused damage to nCAP. nCAP is entitled to recover from Apple the damages sustained by nCAP as a result of Apple's wrongful acts in an amount adequate to compensate nCAP for Apple's infringement subject to proof at trial. In addition, the infringing acts and practices of Apple have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable

harm to nCAP for which there is no adequate remedy at law, and for which nCAP is entitled to injunctive relief under 35 U.S.C. § 283.

74. Apple has committed and continues to commit acts of infringement under 35 U.S.C. § 271 with the Accused Instrumentalities. In committing these acts of infringement, Apple knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent and therefore committed sufficiently egregious conduct to warrant enhanced damages.

75. As an example of Apple's infringement, Apple infringed upon independent claim 12 of the '071 patent. Apple makes, uses, offers to sell, sells and imports an antenna enhancer. The antenna enhancer is observable with the naked eye on all of the Accused Instrumentalities, and is visible as a gold substance (examples from the iPhone 5s, iPhone 6, Apple Watch, and the iPad 4, below):



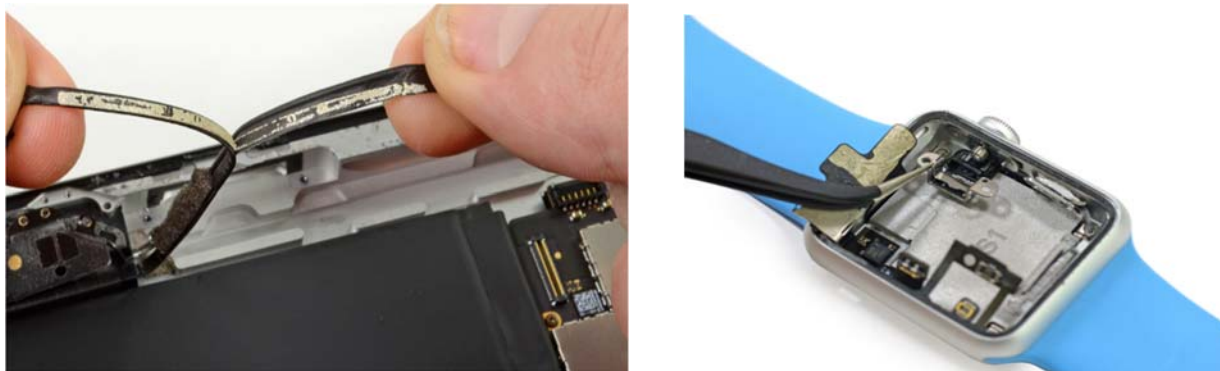


Figure 15. Antenna Enhancer Element

76. The antenna enhancer is comprised of an antenna enhancer element (pictured above) affixed onto the antennas of the device. Apple's antenna enhancer element (gold material) was not present in Apple iPhones or other devices which pre-date the iPhone 5s.

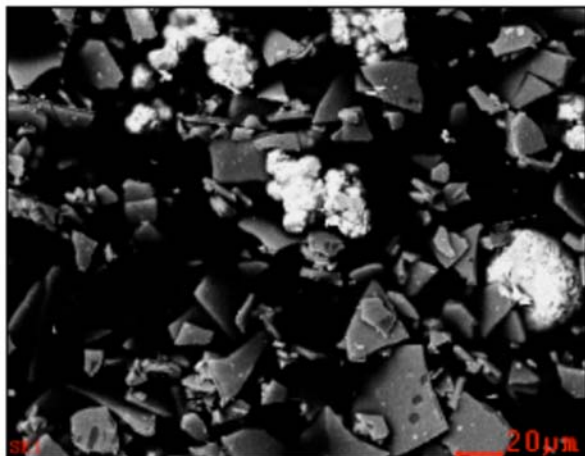


Figure 16. Nano-Particles

77. The Apple's antenna enhancer is formed of a conductive particle based material. Apple's antenna enhancer is formed of nano-particles affixed in a substrate. Spectroscopic analysis of the nano-particles (the lighter colored granules) in the suspect material indicates that they are formed of highly conductive particles, including silver and nickel. This is consistent

with the composition of one embodiment of the patented invention. The patented invention uses, in one embodiment, silver and copper, another conductive material. These nano-particles are affixed in a substrate, similar to the substrate in one embodiment of the patented invention. The substrate is composed of a variety of other materials, including carbon, and other trace elements.

78. As illustrated by the photographs above, Apple's antenna enhancer element is disposed at an area of an inner side of a housing of a wireless device. All the wireless devices released or manufactured after the iPhone 5s was released include Apple's antenna enhancer in the inner side of the housing.

79. The antenna enhancer in each of these wireless devices is least one of an internal radiating or receiving antenna, as an example the Wi-Fi antenna which operates as both a radiating and a receiving antenna.

80. The housing of the wireless device in the Accused Instrumentalities is formed of a conductive material. As an example, iPhone housings are made from aluminum, which is a conductive material. <https://www.cnet.com/news/how-its-aluminum-housing-may-be-causing-iphone-5-shortages/>. Later models, such as the 7, also have an aluminum housing: <http://appleinsider.com/articles/16/09/09/how-apple-achieves-the-high-gloss-jet-black-color-on-the-iphone-7-7-plus>. As does the Macbook: [http://appleinsider.com/articles/08/10/14/apple\\_details\\_new\\_macbook\\_manufacturing\\_process](http://appleinsider.com/articles/08/10/14/apple_details_new_macbook_manufacturing_process). On information and belief, all of the Accused Instrumentalities include a conductive material as a housing.

81. Further, consistent with claim 12, a non-conductive material is disposed between Apple's antenna enhancer element and the radiating or receiving antenna. Specifically, Apple's antenna systems are housed in a plastic case, which is non-conductive.

82. Apple's conductive particle based material comprises particles dispersed in a binder. As described above, the nano-particles of Apple's material are primarily nickel coated in silver, which are conductive. The conductive nickel/silver nano-particles are dispersed in a binder containing other elements such as carbon, as illustrated by the spectroscopic analysis.

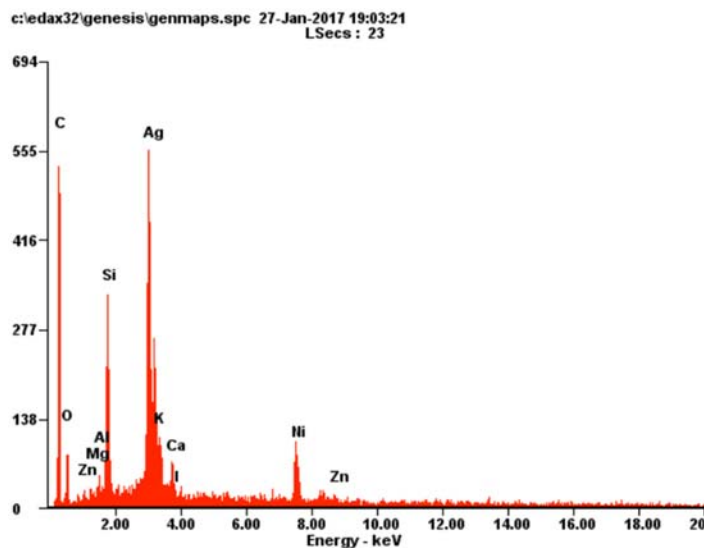


Figure 17. Spectroscopic Analysis

83. The conductive nano-particles in Apple's material are dispersed in the binder so that at least a majority of the conductive particles are adjacent to, but do not touch, one another. As illustrated above, and here again, the conductive particles (i.e. the more lightly colored nano-particles) are near/adjacent to each other, but they do not touch. The nano-particles in the example below are anywhere from approximately 30 to 60 microns apart.

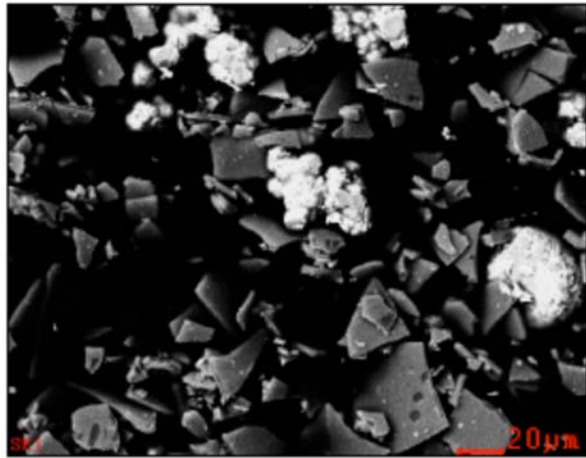


Figure 18. Nano-Particles

84. Apple's infringement of the patent-in-suit has been and continues to be willful.

85. To the extent that Apple releases any new version of the Accused Instrumentalities, such instrumentalities will meet the claims of the patent-in-suit and infringe 35 U.S.C. § 271(a)-(c) in ways analogous to Apple's current infringement described above.

#### **COUNT TWO: VIOLATION OF UTAH UNFAIR COMPETITION ACT**

86. nCAP incorporates by reference the preceding paragraphs as if fully set forth herein.

87. As described above, Apple has infringed and continues to infringe the patent-in-suit.

88. As described above, Apple began its efforts to infringe on the '071 patent before it was issued, and before it was even published or otherwise publicly available. Apple began its efforts to capitalize on nCAP's know-how and technology as early as 2010 at the time nCAP began participating in DoD events. Before any information was publicly available, Apple began aggregating information disseminated at DoD events regarding nCAP's patent pending antenna

enhancer. Apple's early efforts led to the resultant patent infringement by Apple once the '071 patent was issued.

89. As described above, Apple and nCAP participated in numerous events hosted by the Department of Defense on military installations. These events disclosed secret and top secret projects. These events also occurred before nCAP's patent application was published. In the course of these events, Apple attended meetings and discovered from nCAP information about its patent pending antenna enhancer, including at least the following:

- Where the antenna enhancer should optimally be placed on a cellular device;
- How to confirm optimal placement;
- The composition of the antenna enhancer (coated nano-particles);
- The placement of the nano-particles in the substrate (close but not touching);
- How effective the antenna enhancer was at improving the performance of a cellular device; and
- Possible bases for the functioning of the antenna enhancer (micro-capacitance).

90. At those events, cutting edge technology was demonstrated by the participants, including nCAP and its demonstration of its antenna enhancer and antenna systems. nCAP's material was readily available to Apple at these events. nCAP further disclosed enabling details regarding its patent pending antenna enhancer and antenna systems to participants at the DoD events before those details were published by the patent office. Specifically, nCAP disclosed that its antenna enhancer included nano-particles, that the nano-particles should be "close but not touching", and that the nano-particles required a specific coating. nCAP additionally disclosed

that the antenna enhancer should be applied to a specific location on the cellular devices, adjacent to the cellular antenna itself.

91. nCAP, as a participant in the events hosted by the Department of Defense (DoD) fall within 48 C.F.R. 27.402 which recognizes contractors' rights in data and copyrights. Since it is recognized that contractors may "have proprietary interests in data" and that agencies shall "protect proprietary data from unauthorized use and disclosure," nCAP had a reasonable expectation that its participation in the Government program would not damage nCAP's "legitimate proprietary interests" in its patent pending antenna enhancer and antenna system.

92. Apple's access to these details before the application was published, and at the DoD events where there was an expectation of privacy, provided Apple with a "head start" in duplicating nCAP's results. Apple had information, directly from nCAP, which would not be publicly available for months or even years—until the time the application published in June of 2012.

93. Apple's unfair head start and subsequent infringement not only deprived nCAP of its rights to enter the market first, but devalued nCAP's intellectual property to such a degree *before* the issuance of the patent that nCAP struggled to arrange financing and to launch its businesses. Apple's head start and subsequent infringement made it difficult for nCAP to capitalize on its antenna enhancer and antenna systems once they were patented. Apple's business practices amount to not only to patent infringement, but are unfair because Apple deprived nCAP of its fair shot at establishing its own business capitalizing on its patented antenna enhancer and antenna systems. It is unfair for Apple to not only infringe on nCAP's



patents, but also demolish nCAP's opportunities to establish its own business because of Apple's head start in infringing on the '071 patent.

94. In addition to Apple's behavior in gleaning information from nCAP at DoD events, Apple proactively attempted to obtain a sample of the patent pending antenna enhancer and antenna systems by telephoning nCAP's offices and requesting a sample. When Apple requested a sample of the antenna enhancer, it did not do so honestly. Instead, a representative from Apple's Head of Mobile Devices office pretended to be a woman looking for a sample of the antenna enhancer for her boyfriend's phone.

95. Before any details of the '071 patent were publicly available, while Apple was nefariously attempting to get a sample of nCAP's antenna enhancer and while Apple was gleaning as much information as it could from DoD events, Apple was simultaneously declined to engage in business discussions with nCAP.

96. Apple's acts towards nCAP are one example of Apple's ongoing pattern of efficient infringement. "Efficient infringement is a cold-hearted business calculation whereby businesses decide it will be cheaper to steal patented technology than to license it and pay a fair royalty to the innovator." <http://www.ipwatchdog.com/2016/10/25/efficient-infringement-arrived-hill/id=74131/> Apple's habitual behaviors with nCAP and other patentees are efficient infringement.

97. Apple repeatedly acts as an efficient infringer. As an example, Apple efficiently infringed on patents assigned to the Wisconsin Alumni Research Foundation (WARF). "Apple not only couldn't be bothered to license the patent; it wouldn't even let WARF in the door to negotiate. Instead, Apple sent the foundation a link to a page on the Apple website, which says

that the company can lay claim to any unsolicited idea.”

<https://www.nytimes.com/2015/10/24/opinion/the-patent-troll-smokescreen.html> As in the WARF case, here Apple could not be bothered to attempt to negotiate a business relationship with nCAP.

98. Apple’s efficient infringement means that small entities like nCAP never have “the chance to grant an exclusive license to an Apple competitor, which could have hurt Apple while maximizing [their own] financial gain.” Instead they have “to resort to expensive litigation to get what [they] should have been able to achieve through less expensive negotiation.” Id.

99. Apple has a *pattern* of using its size and enormous political, industrial, and financial influence to bully, squash or otherwise make life difficult for entities like nCAP. Apple is recognized as being part of a technological “Gang of Five” companies which essentially control the immediate past, present, and future of technology. In one commenters opinion, the “oligopoly” of Apple, along with the others in the gang of five “...handicaps independent companies with new ideas.” Often Apple will “extend[] its power [] by aping the features of other tech companies’ products, and incorporating them into a platform.”

<https://www.theverge.com/2017/3/8/14848642/walt-mossberg-tech-gang-of-five-apple-google-microsoft-amazon-facebook>

100. Apple, as one of “the Gang of Five engages in business operations which are the hallmark of efficient infringement...” <http://www.ipwatchdog.com/2017/03/17/tech-ruling-class-stifles-innovation-efficient-infringement/id=79391/> Because of the nature of efficient infringement, not all activities are directed at the same patent holder. Instead, Apple’s treatment

of each patent holder falls into a pattern of efficient infringement. Because Apple's acts are directed towards multiple different patentees, the individual acts appear to be merely normal competitive behaviors. But when Apple's actions are viewed through the lens of its *pattern* of behavior, it is clear that Apple's habitual unfair acts are, both individually and collectively, efficient infringement.

101. As a further example, although Apple phones rely heavily on Qualcomm's patents and modem chips, Apple has recently sued Qualcomm over its royalty rates. Although a royalty dispute is not, alone, an indicia of an unfair business practice, Apple's suit coincidentally coincides with "regulatory investigations and fines on three continents, including a lawsuit announced [at the same time as Apple's lawsuit] by the U.S. Federal Trade Commission."

<https://www.bloomberg.com/news/articles/2017-01-23/apple-s-legal-assault-on-qualcomm-is-part-of-phone-margin-grab> Apple has further suspended its payments to Qualcomm during the pendency of the suit, even though Apple could not produce its phones without Qualcomm's technology. Apple's behavior in suing Qualcomm, the likelihood that Apple used its political clout to instigate simultaneous regulatory investigations of Qualcomm, and Apple's decision to forgo paying Qualcomm indicate a habitual, unfair pattern of behavior on Apple's part. In that example, it is directed at Qualcomm, but it is a symptom of a larger unfair pattern that Apple has applied to nCAP.

102. Further, Apple even uses the mere suggestion of pulling out of its existing contracts to force the renegotiation the contracts, devalue existing companies and their intellectual property. As an example, Apple asserted it would drastically reduce its contracts with Imagination Technology, Dialog, and possibly Synaptics. The results were devastating for

each. Imagination Technology's stock fell 72 percent, while Dialog and Synaptics fell 36 percent and 12 percent respectively. <http://www.ipwatchdog.com/2017/06/20/apple-holding-companies-innovation-hostage/id=84788/>; <https://www.bloomberg.com/news/articles/2017-11-30/apple-reportedly-making-in-house-power-chips-in-blow-to-dialog>

103. As one intellectual property blogger has noted "Imagination, Dialog and any other companies that run afoul of Apple should be ready for a long, drawn-out process, because Apple does not back down from a fight. To be convinced, one must only look at the company's assault on Qualcomm." <http://www.ipwatchdog.com/2017/06/20/apple-holding-companies-innovation-hostage/id=84788/>

104. In complaining about another patent infringement lawsuit, Apple has stated that the patent holder plaintiff "Smartflash makes no products, has no employees, creates no jobs, has no U.S. presence, and is exploiting our patent system to seek royalties for technology Apple invented." <http://www.latimes.com/business/la-fi-apple-patent-verdict-20150226-story.html> (quoting Apple's statement). But in this case, Apple's own actions have made it exceedingly difficult for nCAP to make products, hire employees, create jobs, or otherwise leverage its own patents. Apple is creating the conditions under which nCAP struggles to grow.

105. Efficient infringement is an unfair business practice, which Apple has used to materially diminish the value of nCAP's patents. "Efficient infringement is the cause of much distress and agony for innovators struggling to survive. The very existence of widespread efficient infringement, which is nothing more than stealing, absolutely stifles innovation." <http://www.ipwatchdog.com/2017/03/17/tech-ruling-class-stifles-innovation-efficient-infringement/id=79391/>

106. Apple's acts, described herein and incorporated by reference, including adopting nCAP's patent pending technology which it only learned of at a DoD event, telephoning nCAP under false pretenses to attempt to obtain a sample of nCAP's patent pending antenna enhancer, and routinely refusing to engage in business negotiations with nCAP regarding its patented technology while infringing on that same patented technology *each* represent an unfair business practice that violates industry standards and is inequitable. Collectively and individually, these acts are indicia of habitual, systemic practices which Apple engages in of devaluing the intellectual property rights of individuals and small or nascent businesses. Apple's habitual unfair practices culminated in Apple's infringement, in this case, of the '071 patent and the impairment of nCAP's ability to determine its own future and the direction of both its business and its intellectual property rights.

107. Businesses like nCAP often do not have the financial resources available to a large market competitor because of the highly innovative nature of the patented technology. It can be difficult to market and sell what potential buyers might see as "magic." Apple already sees the value in the patented technology. Apple should be prohibited from acting unfairly in business negotiations. nCAP should have the opportunity to access the capital necessary to expand both research and development as well as product manufacturing capabilities, enabling it to manufacture the material (and receive the resulting profits) rather than simply receive royalties on the use of the technology itself. Apple's unfair behavior and subsequent infringement impairs the value of nCAP's patent by depriving nCAP of an ability to use the rights flowing from that patent to seek all of the profits from manufacturing the material as a first-mover and lawful

monopolist. This has stymied nCAP's business development, and slowed nCAP's marketing to other large market competitors.

108. Apple engaged and engages in intentional business acts and practices that are unlawful, unfair or fraudulent and a violation of the Utah Unfair Competition Act. In addition to infringing on nCAP's patented invention, Apple engaged in a pattern of intentional behavior which was unfair and materially diminished the value of nCAP's intellectual property. Utah Code Ann. § 13-5a-102.

109. Apple violated equitable rules of fair play, as well as industry standards, when it leveraged its access to nCAP's antenna enhancer to create its own infringing product. Apple's intentional business practice of aggregating information regarding nCAP's material at DoD events before the information was published by the Patent Office, requesting nCAP's material under false pretenses, refusing to discuss business arrangements regarding the antenna enhancer with nCAP, and utilizing its own infringing antenna enhancer in the Accused Instrumentalities represents a pattern of unfair business practices that include Apple's ultimate infringement on nCAP's '071 patent and result in a material diminution in the value of nCAP's intellectual property. Apple created its own "head start" in infringing the '071 patent to its own advantage. In giving itself a head start, Apple also eradicated much of the value of nCAP's intellectual property because nCAP's struggled to get capital to form businesses based upon its own intellectual property.

110. nCAP was denied the value of bringing its patented invention to market, and building businesses around its intellectual property, or selling it to various consumers. Without Apple's infringement, nCAP would have leveraged its patent to generate more business, such as

with Case Vendor, different cellular telephone manufacturers, antenna manufacturers, or by selling the Material to Apple itself. Because of Apple's infringement, nCAP has been unable to capitalize on these potential business opportunities.

111. Because of Apple's unfair competition, nCAP's intellectual property value was diminished because nCAP was forced to forgo business opportunities relating to cellular devices. Specifically, nCAP was unable to continue adapting protective cases with its material since the Accused Instrumentalities already included the infringing antenna enhancers. Consequently, nCAP lost one existing contract with a protective case manufacturer, and lost the ability to pursue other contracts with other case manufacturers.

112. The value of nCAP's intellectual property was further diminished as a result of Apple's infringement because shareholders lost confidence in nCAP's ability to leverage the value of the antenna enhancer. As a result, shareholders attempted to negotiate buybacks, sell their shares, or otherwise were unwilling to continue pursuing business opportunities with nCAP. This resulted in diminished working capital, which made it difficult for nCAP to leverage its intellectual property, consequently decreasing the value of nCAP's intellectual property, overall.

113. nCAP's intellectual property was further diminished by Apple's unfair competition because nCAP was unable to pursue business opportunities with other cellular device manufacturers. Apple's infringement of nCAP's patents resulted in a cloud over the value of the patent, and made it impossible for nCAP to negotiate from a point of strength with other cellular device manufacturers. As an example, other cellular device manufacturers contacted nCAP regarding its intellectual property, but nCAP was unable to negotiate details for a business agreement because of Apple's infringement and the looming patent litigation.

114. Apple's unfair competition diminished the value of nCAP's intellectual property because nCAP was unable to acquire outside funding. As an example, at least one investment bank would not move forward with nCAP because of Apple's infringement and the uncertainty of nCAP's future in light of required litigation.

115. Not only has nCAP been denied the ability to sell its product, acquire funding, engage in new contracts, or generate business, nCAP is further forced to litigate against Apple in order to realize the value of its patent. This diminishes the value of the patent, since Apple and any other potential licensee can take a wait and see attitude with respect to the value of nCAP's patented technology. Rather than pay fair value before including patented technology in its products, Apple can instead leverage its immense financial resources toward the goal of "efficient" infringement, contending that even in a worst-case scenario it should pay only the same value that it likely should have paid in an arms-length licensing negotiation.

116. Apple's practices in infringing on nCAP's patent-in-suit were unlawful, unfair, or fraudulent and those practices leads to a material diminution in value of the patent. Further, Apple's practices are habitual when examined across multiple patentees in the industry. Apple habitually makes it difficult for innovators, patentees, and small business owners to enter the industry, negotiate with other industry participants, and leverage their own intellectual property. This behavior goes beyond normal competitive measures, is unfair, and violates industry standards and business norms. Because Apple's unfair competition is a pattern of behaviors, targeted at a plurality of individuals or individual entities, it is difficult for any one of Apple's victims to prevent or stop Apple's unfair competition. Each of Apple's unfair, unethical, and



unscrupulous actions against an individual entity are part of this violation of ethical business practices.

117. As a result of Apple's unfair business acts, nCAP has been unable to make business arrangements with one or more potential consumers, such as Case Vendor or Apple itself. Because of Apple's unfair tactics, including its unfair head start, nCap has been injured by being unable to obtain the good will of being the company that provided this technology to the cell phone market. nCAP further lost the opportunity to decide with whom it would engage in business dealings (Apple versus other cellular device manufacturers, case manufacturers, etc.). nCAP also had difficulty accessing funding, recruiting investors, or otherwise building its own business. nCAP has lost its opportunity to market its patented invention exclusively, or to otherwise dictate its own business future. Further, nCAP has lost good will that cannot be compensated through damages or fully obtained through an injunction which is further injuring the company.

#### **DEMAND FOR JURY TRIAL**

118. nCAP hereby demands a jury for all issues so triable.

#### **PRAYER FOR RELIEF**

#### **Plaintiffs hereby seek the following relief from this Court:**

119. A judgment that Apple has directly infringed the patent-in-suit, contributorily infringed the patent-in-suit, and induced the infringement of the patent-in-suit

120. A preliminary and permanent injunction preventing Apple and its officers, directors, agents, servants, employees, attorneys, licensees, successors, and assigns, and those in

active concert or participation with any of them, from directly infringing, contributorily infringing, and inducing the infringement of the patent-in-suit;

121. A judgment that Apple's infringement of the patent-in-suit has been willful;

122. A judgment and order requiring Apple to pay Plaintiffs damages under 35 U.S.C. § 284, including supplemental damages for any continuing post-verdict infringement through entry of the final judgment, with an accounting, as needed, and enhanced damages for willful infringement as provided by 35 U.S.C § 284;

123. A ruling that this case be found to be exceptional under 35 U.S.C. § 285, and a judgment awarding to Plaintiffs their attorneys' fees incurred in prosecuting this action;

124. A judgment that Apple violated Utah Code Ann. § 13-5a-102;

125. A judgment and order requiring Apple to pay Plaintiffs damages under Utah Code Ann. § 13-5a-103, including actual damages and costs and attorney fees;

126. A ruling that the circumstances are appropriate and a judgment that Apple pay punitive damages;

127. A judgment and order requiring Apple to pay Plaintiffs the costs of this action (including all disbursements);

128. A judgment and order requiring Apple to pay Plaintiffs pre-judgment and post-judgment interest on the damages awarded;

129. In the event a permanent injunction preventing future acts of infringement is not granted, an order requiring Apple to pay to Plaintiffs an ongoing royalty for its continued infringement with periodic accountings; and

130. Such other and further relief as the Court may deem just and proper.

DATED this 26th day of December, 2017.

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